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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/805,021

03/12/2001

Iraj Sanice

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05/03/2005

LUCENT TECHNOLOGIES INC.

DOCKET ADMINISTRATOR

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HOLMDEL, NJ 07733

EXAMINER

LI, SHI K

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/805,021

Applicant(s)

SANIEE ET AL.

Examiner

Shi K. Li

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 and 12-19 is/are rejected.
7) ☒ Claim(s) 10 and 11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 14 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
• Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. The declaration filed on 14 January 2005 under 37 CFR 1.131 is sufficient to overcome the Baworntummarat reference. New ground of rejection follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 depends on claim 16. Claim 16 recites the limitation "two or more ring having a common link are permitted to share optical fibers on such a common link" in lines 2-3 of the claim while claim 17 recites the limitation "wherein each optical fiber on a given link of a ring is allocated exclusively to one ring" which implies that two rings cannot share an optical fiber on a common link. Therefore, it is unclear whether two or more rings having a common link can or cannot share an optical fiber on such a common link.

Claim 18 indirectly depends on claim 1. Claim 18 recites "compound demand ... comprising two or more constituent demands" in lines 2-3 of the claim and "a working path or protection path for the compound demand is permitted to pass through links occupied by distinct rings" in lines 7-8 of the claim. However, claim 1 recites the limitation "assigning two mutually link-disjoint paths on the ring from one end node to the other, wherein one said path is a working path and the other said path is a protection path". Therefore, it is unclear whether the working path and the protection path are on one ring or they are on distinct rings.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Doshi et al. (B. Doshi et al., "Optical Network Design and Restoration", Bell Labs Technical Journal, January-March 1999).

Doshi et al. teaches in FIG. 2 a method for routing two demands d1 and d2 in an optical network. The demands are between nodes S and T. Doshi et al. teaches in p. 62, right col., last paragraph that d1's service route is the top path and demand d2's service route is the bottom path. Both demands have the middle path as the restoration route (protection path). The service path and the restoration path of each demand form a ring containing both the end nodes S and T.

Regarding claim 2, FIG. 2 illustrates that each of the protection path is node disjoint from its working path.

Regarding claims 14, FIG. 2 illustrates that the ring for d1 and the ring for d2 share common links.

6. Claims 1, 5-9 and 12-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ramamurthy et al. (S. Ramamurthy et al., "Survivable WDM Mesh Networks, Part I – Protection", IEEE, 1999).

Regarding claim 1, Ramamurthy et al. discusses protection in WDM mesh network. Ramamurthy et al. teaches in p. 744, right col., third paragraph that a connect request (demand)

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is satisfied by establishing a lightpath (working path) which is assigned a wavelength.

Ramamurthy et al. teaches in p. 745, right col., last two paragraphs dedicated-path protection where a backup path is reserved, assigned a backup wavelength. The working path and the backup (protection) path form a ring.

Regarding claim 5, Ramamurthy et al. teaches in p. 744, right col., third paragraph that two lightpaths cannot have same wavelength. Ramamurthy et al. teaches in p. 745, right col., last paragraph that protection path is not shared.

Regarding claim 6, Ramamurthy et al. teaches in p. 744, right col., third paragraph that a lightpath is associated with a wavelength.

Regarding claim 7, Ramamurthy et al. teaches in p. 744, right col., third paragraph that two lightpaths cannot have same wavelength.

Regarding claim 8, Ramamurthy et al. teaches in p. 747, right col., first paragraph to minimize total number of wavelengths.

Regarding claim 9, minimizing number of wavelengths also minimizes the occupancy of ports and/or optical terminal units.

Regarding claim 12, Ramamurthy et al. teaches in p. 747, right col., first paragraph to minimize total number of wavelengths used on all the links in the network. That is, Ramamurthy et al. considers all demands assignment as a whole for optimization.

Regarding claim 13, Ramamurthy et al. teaches in p. 744, right col., third paragraph that a lightpath is associated with a wavelength.

Regarding claim 14, Ramamurthy et al. teaches in p. 744, right col., third paragraph that lightpaths on a fiber link must be on different wavelength channels.

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Regarding claim 15, Ramamurthy et al. teaches in p. 746, left col., first paragraph shared-path protection where a backup wavelength reserved on links of backup path may be shared with other backup paths. A working path and its backup path form a ring.

Regarding claim 16, Ramamurthy et al. teaches in p. 744, right col., third paragraph that working paths can share fiber on common link and each wavelength channel on such a shared link belongs exclusively to only one of the sharing rings.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy et al. (S. Ramamurthy et al., "Survivable WDM Mesh Networks, Part I – Protection", IEEE, 1999) in view of Patel et al. (U.S. Patent Application Pub. 2002/0041410 A1).

Ramamurthy et al. has been discussed above in regard to claims 1, 5-9 and 12-16. The difference between Ramamurthy et al. and the claimed invention is that Ramamurthy et al. does not teach to divide a demand into a plurality of unit demands. Patel et al. teaches in Table 1 that demands are usually specified in terms of unit bandwidth. One of ordinary skill in the art would have been motivated to combine the teaching of Patel et al. with the WDM network of Ramamurthy et al. because dividing demands into a plurality of unit demands allows efficient assignment of demands into available capacity and reduces idle capacity. For example, Table 2 of Patel et al. shows that five demands can be assigned to three wavelengths, instead of five

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wavelengths. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to divide demands into a plurality of unit demands, as taught by Patel et al., in the WDM network of Ramamurthy et al. because dividing demands into a plurality of unit demands allows efficient assignment of demands into available capacity and reduces idle capacity.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy et al. and Patel et al. as applied to claim 3 above, and further in view of Chaudhuri (U.S. Patent 6,324,162 B1).

Ramamurthy et al. and Patel et al. have been discussed above in regard to claim 3. Patel et al. teaches in Table 1 that a unit of demand is OC-48. The difference between Ramamurthy et al. and Patel et al. and the claimed invention is that Ramamurthy et al. and Patel et al. do not teach that one unit of demand is equivalent to the bandwidth capacity of one wavelength.

Chaudhuri teaches in FIG. 1 an optical network where each wavelength channel is OC-48. One of ordinary skill in the art would have been motivated to apply the modified protection scheme of Ramamurthy et al. and Patel et al. to the optical network of Chaudhuri because the modified protection scheme of Ramamurthy et al. and Patel et al. is fast with minimized cost. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the modified protection scheme of Ramamurthy et al. and Patel et al. to the optical network of Chaudhuri because the modified protection scheme of Ramamurthy et al. and Patel et al. is fast with minimized cost.

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10. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy et al. (S. Ramamurthy et al., "Survivable WDM Mesh Networks, Part I – Protection", IEEE, 1999).

Ramamurthy et al. has been discussed above in regard to claims 1, 5-9 and 12-16. The difference between Ramamurthy et al. and the claimed invention is that Ramamurthy et al. does not discuss compound demand. However, a compound demand is just two demands with one common end node as defined by the instant claim. Ramamurthy et al. teaches in p. 744, right col., third paragraph that two demands are assigned two wavelength paths, each of which forms a ring with its associated backup path. That is, the working path for the compound demand passes through links associated with the two rings, each of which is associated with one constituent demand of the compound demand. For example, a demand from node A to node B and a demand from node B to node C form a compound demand. Ring P is associated with the demand from node A to node B and ring Q is associated with the demand from node B to node C. Then the working path of compound demand from node A to node B to node C passes through links of ring P and ring Q.

Allowable Subject Matter

11. Claims 10-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments with respect to claims 1-9 and 12-19 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

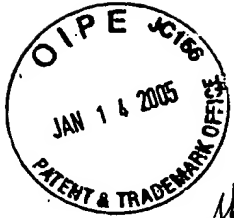
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl
21 April 2005


M. R. SEDIGHIAN
PRIMARY EXAMINER

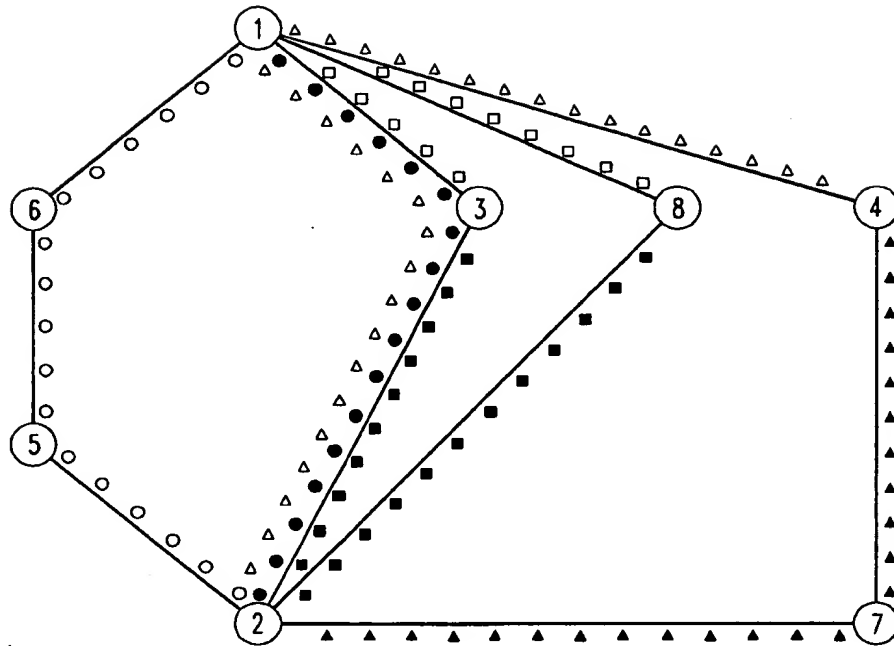


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REPLACEMENT SHEET

1/10

FIG. 1



①, ②	●	○
②, ④	▲	△
③, ⑧	■	□
LEGEND		